SYMPOSIUM SM5

Aqueous Cytomimetic Materials
April 19 - April 20, 2017

Symposium Organizers
Takahiko Ban, Osaka University
Christine Keating, The Pennsylvania State University
Anderson Shum, The University of Hong Kong
Shuichi Takayama, University of Michigan

Proceedings Statement
All authors are invited to submit articles based on their 2017 MRS Spring Meeting presentations to the journals in the MRS portfolio (www.mrs.org/publications-news). Papers submitted and accepted for publication in MRS Advances (www.mrs.org/mrs-advances) will be available as symposium collections. Visit the MRS/Cambridge University Press Publications Booth #100 in the Exhibit Hall to learn more, including MRS Advances print options available at special rates during the meeting week only.

8:15 AM *SM5.1.01
Moving through Intracellular Phase Space (Invited Paper)
Clifford Brangwynne; Princeton University, United States.

8:45 AM *SM5.1.02
Membrane Formation by Interfacial Complexation in Aqueous Two-Phase Systems (ATPS)
Sarah Hann; University of Pennsylvania, United States.

9:15 AM SM5.1.03
Microfluidic Generation of Particle-Stabilized Water-in-Water Emulsions
Niki Abbasi1, 2, 3; ‘St. Michael’s Hospital, Canada; 2Partnership between Ryerson University and St. Michael’s Hospital, Canada; 3Ryerson University, Canada.

9:45 AM SM5.1.05
Controlled Electrospraying Generation of Non-Spherical Aqueous Microparticles
Scott Tsai1, 3, 4; ‘Ryerson University, Canada; 2St. Michael’s Hospital, Canada; 3A Partnership between Ryerson University and St. Michael’s Hospital, Canada.

11:00 AM BREAK

10:30 AM *SM5.1.06
Microfluidic Water-in-Water Droplets—Passive Generation, Cargo Encapsulation and Controlled Release
Scott Tsai1, 2; ‘Ryerson University, Canada; 2St. Michael’s Hospital, Canada.

11:00 AM *SM5.1.07
Chemical Control of Hydrodynamics in Aqueous Systems
Yuichiro Nagatsu; Tokyo University of Agriculture and Technology, Japan.

11:30 AM SM5.1.08
Generation of Micron-Size All-Aqueous Emulsions by Interfacial Folding
Sze Yi Mak1, 2; ‘The University of Hong Kong, Hong Kong; 2HKU-Shenzhen Institute of Research and Innovation (HKU-SIRI), China.

11:45 AM SM5.1.09
Exploration of Emergent Collective Phenomena and Dynamic Behavior of Active Matter Subjected to Steep Spatiotemporal Thermal Gradients
Serim Ilday; Bilkent University, Turkey.

SESSION SM5.2: Aqueous Phase Separation for Artificial Cells
Session Chairs: John Frampton and Anderson Shum
Wednesday Afternoon, April 19, 2017
PCC North, 100 Level, Room 122 B

1:30 PM *SM5.2.01
ATPS Deserves Plausible Real-World Modeling for the Structure and Function of Living Cells
Kanna Tsumoto; Mie University, Japan.

2:00 PM *SM5.2.02
Assembly of Highly Stable and Self-Repairing Membrane-Mimetic 2D Materials from Lipid-Like Peptoids
Chun-Long Chen; Pacific Northwest National Lab, United States.

4:00 PM *SM5.2.04
Synthetic Biology in Aqueous Compartments at the Micro- and Nanoscale
Charles P. Collier1, 2; ‘Oak Ridge National Laboratory, United States; 2University of Tennessee, United States.

4:30 PM *SM5.2.05
Self-Propelled Vesicles Using Transient Interfacial Tension in ATPS
Takahiko Ban; Osaka University, Japan.

SESSION SM5.3: Poster Session
Session Chairs: Yuichiro Nagatsu and Hossein Tavana
Wednesday Afternoon, April 19, 2017
8:00 PM - 10:00 PM
Sheraton, Third Level, Phoenix Ballroom

SM5.3.01
High-Throughput 3D Neural Cell Culture Analysis Facilitated by Aqueous Two-Phase Systems
Kristin Robin Ko; Dalhousie University, Canada.

SM5.3.02
Bipatterning of Keratinocytes in Aqueous Two-Phase Systems as a Potential Tool for Skin Tissue Engineering
Rishima Agarwal; Dalhousie University, Canada.

SM5.3.03
Microfluidic Platform for Examining the Phase Behavior of Condensed RNA/Protein Phases
Nicole Taylor; Princeton University, United States.

SM5.3.04
Dynamics of Non-Equilibrium w/w/o Double Emulsions towards Their Equilibrium State
Youchuang Chao; The University of Hong Kong, Hong Kong.

SM5.3.05
Effects of Acid Hydrolysis on the Fabrication of Cassava Starch Microspheres in Aqueous Two-Phase System
Huiping Xia; South China University of Technology, China.

SM5.3.06
Controlling Convection in Rehydrating Aqueous Two-Phase Systems
Cameron Yamani; University of Michigan, United States.

SM5.3.07
Biomimetic Membrane Platforms for Water Purification
Taeg-Joon Jeon; Inha University, Korea (the Republic of).
SESSION SM5.4: Molecular Properties of Aqueous Systems
Session Chairs: Christine Keating and Kanta Tsunomo
Thursday Morning, April 20, 2017
PCC North, 100 Level, Room 122 B

8:15 AM *SM5.4.01
Mesoscale Studies of Ionic Vesicles with Polyhedral Geometries Monica
Olvera de la Cruz; Northwestern University, United States.

8:45 AM *SM5.4.02
Properties of Aqueous Two-Phase Systems Boris Y. Zaslavsky; Cleveland
Diagnostics, United States.

9:15 AM SM5.4.03
Supramolecular Hydrogels Compartmentalized Using Aqueous Multi-
Phase Systems Serhii Mytnyk; Delft University of Technology, Netherlands.

9:30 AM BREAK

10:00 AM *SM5.4.04
Nanostructured Protein Capsules Tuomas P. Knowles; University of
Cambridge, United Kingdom; 2 University of Cambridge, United Kingdom.

10:30 AM *SM5.4.05
Molecular Engineering of Polyelectrolyte Complex Materials Sarah L.
Perry; University of Massachusetts Amherst, United States.

11:00 AM *SM5.4.06
Basic and Applied Aspects of “Microphase-Separation” on Biomimetic
Membrane - Designed Bio-Inspired Membrane Can Achieve Chiral
Recognition and Conversion of Target Molecules - Hiroshi Umakoshi; Osaka
University, Japan.

11:30 AM SM5.4.07
Aqueous Emulsion Droplets Stabilized by Lipids Vesicles as
Microcompartments for Biomimetic Mineralization Andrew Rowland; The
Pennsylvania State University, United States.

11:45 AM SM5.4.08
Formation of Biomimetic Materials through Short Peptide Self-
Assembly Under Volume Confinement Aviad Levin; 1 Tel Aviv University,
Israel; 2 University of Cambridge, United Kingdom.

SESSION SM5.5: Biotechnology Based on Aqueous Systems
Session Chairs: Chun-Long Chen and Shuichi Takayama
Thursday Afternoon, April 20, 2017
PCC North, 100 Level, Room 122 B

1:45 PM *SM5.5.01
Incorporating Aqueous Two-Phase Systems and the Lateral-Flow
Immunoassay into a Single Point-of-Care Diagnostic Daniel T. Kamei;
University of California, Los Angeles, United States.

2:15 PM *SM5.5.02
Aqueous Two-Phase System Solution Micropatterning—Applications in
Biomaterial Development and Clinical Chemistry John Frampton; Dalhousie
University, Canada.

2:45 PM SM5.5.03
Lipid Multilayer Grating Arrays as Label-Free Cytomimetic Aqueous
Sensors Steven Lenhert; Florida State University, United States.

3:00 PM BREAK

3:30 PM *SM5.5.04
Membrane Wetting, Budding and Tubulation in Vesicles Exposed to
Aqueous Two-Phase Systems Rumiana Dimova; Max Planck Institute of
Colloids and Interfaces, Germany.

4:00 PM *SM5.5.05
Experimental and Modeling Investigation of Cell Partition in Aqueous
Two-Phase Systems Hossein Tavana; The University of Akron, United States.